

1 1. A substantially pure polypeptide comprising an amino
2 acid sequence at least 70% identical to any one of SEQ ID
3 NOs:1, 3, 22, or 27, wherein the polypeptide is a
4 transporter of an organic cation.

1 2. The polypeptide of claim 1, wherein the amino acid
2 sequence is at least 80% identical to any one of SEQ ID
3 NOs:1, 3, 22, or 27.

1 3. The polypeptide of claim 1, wherein the amino acid
2 sequence is at least 90% identical to any one of SEQ ID
3 NOs:1, 3, 22, or 27.

1 4. The polypeptide of claim 1, wherein the amino acid
2 sequence is at least 95% identical to any one of SEQ ID
3 NOs:1, 3, 22, or 27.

1 5. A substantially pure polypeptide comprising the
2 sequence of any one of SEQ ID NOs:1, 3, 22, or 27.

1 6. A substantially pure polypeptide comprising the
2 amino acid sequence of any one of SEQ ID NOs:1, 3, 22, or
3 27, with up to 30 conservative amino acid substitutions,
4 wherein the polypeptide is a transporter of an organic
5 cation.

1 7. A substantially pure polypeptide encoded by a
2 nucleic acid that hybridizes under stringent conditions to

3 a probe the sequence of which consists of any one of SEQ ID
4 NOs:2, 4, 23, or 28, wherein the polypeptide is a
5 transporter of an organic cation.

1 8. An isolated nucleic acid encoding the polypeptide of
2 claim 1.

1 9. An isolated nucleic acid encoding the polypeptide of
2 claim 5.

1 10. An isolated nucleic acid encoding the polypeptide
2 of claim 6.

1 11. An isolated nucleic acid comprising a strand that
2 hybridizes under stringent conditions to a single stranded
3 probe, the sequence of which consists of any one of SEQ ID
4 NOs:2, 4, 23, or 28, or the complement of any one of SEQ ID
5 NOs:2, 4, 23, or 28.

1 12. The isolated nucleic acid of claim 11, wherein the
2 nucleic acid encodes a polypeptide that is a transporter of
3 an organic cation.

1 13. The nucleic acid of claim 12, wherein the amino
2 acid sequence of the polypeptide comprises any one of SEQ
3 ID NOs: 1, 3, 22, or 27.

1 14. The nucleic acid of claim 11, wherein the strand is
2 at least 15 nucleotides in length.

1 15. The nucleic acid of claim 14, wherein the nucleic
2 acid is an antisense nucleic acid that inhibits expression
3 of a polypeptide comprising any one of SEQ ID NOs: 1, 3,
4 22, or 27.

1 16. A vector comprising the nucleic acid of claim 8.

1 17. A vector comprising the nucleic acid of claim 9.

1 18. A vector comprising the nucleic acid of claim 10.

1 19. A vector comprising the nucleic acid of claim 11.

1 20. A vector comprising the nucleic acid of claim 12.

1 21. A cultured host cell comprising the nucleic acid of
2 claim 8.

1 22. A cultured host cell comprising the nucleic acid of
2 claim 9.

1 23. A cultured host cell comprising the nucleic acid of
2 claim 10.

1 24. A cultured host cell comprising the nucleic acid of
2 claim 11.

1 25. A cultured host cell comprising the nucleic acid of
2 claim 12.

1 26. An antibody that specifically binds to the
2 polypeptide of claim 1.

1 27. A method of producing a polypeptide, the method
2 comprising isolating the polypeptide from the cultured host
3 cell of claim 21.

1 28. The polypeptide of claim 1, wherein the polypeptide
2 comprises the sequence Xaa1-Xaa2-Xaa3-Xaa4-Xaa5-Xaa6- Xaa7-
3 Gly-Arg-Xaa8-Xaa9-Xaa10-Xaa11-Xaa12, wherein

4 Xaa1 is Leu, Ile, Val, Met, Ser, Thr, Ala, or Gly;

5 Xaa2 is Leu, Ile, Val, Met, Phe, Ser, Ala, or Gly;

6 Xaa3 is any amino acid;

7 Xaa4 is Leu, Ile, Val, Met, Ser, Ala Xaa5 is Asp or Glu;

8 Xaa6 is any amino acid;

9 Xaa7 is Leu, Ile, Val, Met, Phe, Tyr, Trp, or Ala;

10 Xaa8 is Arg or Lys;

11 Xaa9 is any amino acid;

12 Xaa10 is any amino acid;

- 13 Xaa11 is any amino acid; and
- 14 Xaa12 is Gly, Ser, Thr, or Ala.